GOVERNMENT OF ANDHRA PRADESH
ABSTRACT

Water Resources(Project.II) Department - WAPCOS Limited - "Preparation of Detailed Project Report (DPR) Providing water supply for drinking, Industrial and Irrigation needs of Rayalaseema, Prakasam and Nellore Districts by diverting flood waters from Godavari River to Penna River"- Preparation of DPR –Revised- Orders - Issued.

WATER RESORUCES (PROJ-2)DEPARTMENT

G.O.RT.No. 262 **Dated: 16-04-2016**

Read the following:

1.Representation of WAPCOSLtd., Lr. No. WAP / HYD / I&CAD / 2014-15/1754, dated: 14-11-2014

2.Government Memo. No. 15615/Projects.II/A2/2014,dt:24-03-2016

3. From the Engineer-in-Chief (Irr), Hyderabad, Lr. No.ENC(I)/ EE/ DEE-2 /AEE-3/ Interlinking of rivers /2015, dt:22-03-2016 and 01.04.2016.

ORDER:

In the reference 1st read above, the WAPCOS has requested for preparation of DPR Providing water supply for drinking, Industrial and Irrigation needs of Rayalaseema, Prakasam and Nellore Districts by diverting surplus waters from Godavari River to Krishna at prakasam Barrage and to Penna River.

2. In the reference 2nd read above, the Government have accorded permission to Engineer-in-Chief (Irr), Hyderabad to entrust the subject work to M/s WAPCOs Limited, a reputed Government of India Pubic Sector Unit for preparation of Detailed Project Report (DPR) for providing water supply for drinking, Industrial and Irrigation needs of Rayalaseema, Prakasam and Nellore Districts by diverting surplus waters from Godavari River to Krishna at Prakasam Barrage to Penna River" with the chargeable head of account "Pennar Head 4700-01-115-11-27-530/531-OE". The expenditure will be met from with in the budget allocated to W.R. Department.

3. In the reference 3rd read above, the Engineer-in-Chief (Irr), Hyderabad has requested necessary revised orders duly mentioning the Amount of contract and terms & conditions including the Head of account, as the Chief Engineer, KDS, Vijayawada, and Superintending Engineer, Irrigation Circle, Guntur kept in charge for preparation of estimate and technical supervision of the above project work with respect to linking Godavari - Krishna - Penna Rivers for providing water supply for industrial, drinking and irrigation needs of Rayalseema, Prakasam and Nellore districts by diverting flood waters from Godavari River**.**

4. The Government after careful examination hereby accord sanction for an amount of Rs.5.00 Crores (Rupees five Crores only) for the consultancy fees to the WAPCOS for preparation of Detailed Project Report for the work "Providing water supply for drinking, Industrial and Irrigation needs of Rayalaseema, Prakasam and Nellore Districts by diverting flood waters from Godavari River to Penna River" and the work shall be completed in 4 (four) months from the date of signing of agreement. The terms and conditions is annexed.

5. The Chief Engineer, NTR TGP, Tirupathi shall take necessary action accordingly and the Chief Engineer, NTR TGP, Tiruapathi shall conclude the agreement in the matter. The Engineer-in-Chief (Irr), Hyderabad will ensure that the works are carried out as per terms and conditions in the reference (3) read above.

(**BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH**)

ADITYA NATH DAS
PRINCIPAL SECRETARY TO GOVERNMENT

To
The Chief Engineer, NTR TGP, Tirupathi
The Engineer-in-Chief (Irrigation), Hyderabad

Copy to:

P.S. to Special Secretary to Chief Minister.
P.S to Hon'ble Minister (WRD).
P.S. to Principal Secretary to Government.
The Finance (FMU-WR.II) Department.
Sf /Sc.

// FORWARDED :: BY ORDER//

SECTION OFFICER

ANNEXURE

TERMS OF CONDITIONS

Scope of Work

The scope of work is "Preparation of Detailed Project Report" for Interlinking of Godavari –Krishna – Pennar – Palar rivers. The DPR report includes broadly following activities:

i) Study of all Engineering data related to the Project.
ii) Collection of data relating to the project from Project Authorities and other sources
iii) Reconnaissance survey of the project area.
iv) Conducting topographical survey using DGPS,ETS and / or LiDAR and Hydrographic survey for planning and Design Project components and canal net work
v) Geotechnical investigation for proposed offline storages and vital structures etc.
vi) Hydrological studies and conducting water balance studies to divert 400 TMC of flood water during flood days from Polavaram Project and Integrated Operation of Polavaram reservoir and the proposed reservoirs enroute.
vii) Study of revising the capacities of existing reservoir systems enroute.
viii) Power & Energy requirements studies.
ix) Electro Mechanical and lift schemes and its cost estimate.
x) Working out Benefit cost ratio
xi) Preparation of Detailed Project Report as per CWC norms
xii) Economical and financial analysis.

Detailed Survey:

The following activities shall be carried out for the above reaches of water conductor system alignment.

i) Fixing of alignment of open Channels/Tunnels/Feeder canals.
ii) Longitudinal sections with 25m interval along the alignment and u/s @ 100 m interval shall be done by LiDAR survey.
iii) Net levels at CM & CD structures on gravity canals.
iv) Fixing centre line stones of standard size along the water conductor system alignment at appropriate interval and at locations CM & CD structures..
v) Fixing Bench mark stones at appropriate interval along the water conductor system alignment only and carrying level. Bench marks are to be established on B.M stones of standard size.

Balancing/Offline Reservoir:

Preparation of proposals for identification if any existing or new tanks to be fed along alignment from proposed polavaram Project to Pennar and Palar basins. Detailed survey for new reservoirs by conducting net level survey at 25 m interval with LiDAR and Hydrographic Survey with 1 mt contour and proposals for improvement to existing tanks.

Geotechnical Investigations:

i) Electrical resistivity survey along the alignment of water conductor system at required intervals.
ii) Bore hole data shall be collected for water conductor system(20 no's) and barrage axis(10 no's)
iii) Quarry map showing the location of the source of construction material required,

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transported facilities to work site should be prepared for gravel, sand, rock,

iv) coarse & fine aggregates, pozzolona if manufactured locally and soils for use in earth Dams.

Designs & Drawings and Estimation:

i) Formulation of Scheme and Conceptual plan, including plan for diverting water, periods and rates of discharge.
ii) Preparation of hydraulic particulars of all the components such as main canal feeder canals, tunnels and all reservoirs.
iii) Design of water conductor system consisting of canals and tunnels.
iv) Design of Cm & CD structures on canals
v) Preparation of quarry map and lead statements for various materials required.
vi) Preparation of data as per the latest State SSR.
vii) Preparation of Detailed, Abstract and classified Abstract.

.**Preparation of Detailed Project Report**

i) Upon Detailed investigations and collection of field data, completed designs, drawings in respect of various components of Project have to be prepared.
ii) All the designs and drawings have to be finalized based on the Indian Standard published by Bureau of Indian Standards.
iii) Design and preparation of drawings various project components
iv) Study of infrastructural facilities
v) Details of land required including for expansion of plant area colony
vi) Backward study of barrage upstream
vii) Detailed Project estimate
viii)Economic and Financial analysis
ix) Liaison with Central Water Commission till the project is cleared
x) EIA,EMP studies and preparation of R&R

TECHNICAL SPECIFICATIONS FOR CIVIL WORKS, SURVEY AND DESIGN:

Topographical Surveys

The accuracy of the design of any scheme depends on the accuracy of field surveys. As such the survey assumes greater importance in this kind of projects. The objective of the proposed topographical surveys is to assess the topography of the Project area, type of terrain profile of tunnel/canal, inter connecting to proposed balancing reservoirs and including existing reservoirs i.e ground features etc and to establish reference Bench marks to enable planning, engineering and execution.

The topographical surveys include map study, reconnaissance survey, preliminary survey and detailed survey of tunnel/main canals/feeder canals. Accordingly, the survey works have to be taken up using Terrestrial laser scanner,DGPS, Auto levels, Total station etc., .Following are the various activities to be undertaken.

A. Map Study :

The Map study includes collection of topo sheets of Survey of India, Satellite imageries from NRSC and studying in detail so as to get first hand information on the general topographical features of the project area. After detailed study of maps, various

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components of tunnel, canal, lift system, balancing reservoirs and feeder canals and command area is to be visualized. This includes demarcating the project proposed on topo maps exploring the possible alternatives.

B. Reconnaissance Survey :

Referring to the topo maps with project proposals, a reconnaissance survey of the project area shall be conducted in order to study the

- Physical features: possible alternative/Hindrances with merits and demerits
- Interaction with client and local enquiry
- Collection of data from department
- Collection of data from various other sources.

C. Preliminary Survey:

As a part of preliminary survey the following activities shall be done.

- Identification and collection of existing GTS/Permanent bench marks.
- Transfer and establishment of Bench mark at site.
- Fixing of canal Alignment/tunnels Alignment from proposed site and identification of existing new tanks to be fed along the alignment.
- Estimates of various components of the project have to be prepared extrapolating from 10% of representative CM/CD structures. The estimates for the entire system have to be prepared.
- Detailed project report has to be prepared as per Departmental guidelines.

The detailed project report broadly consists of following volumes as per departmental guidelines.

1. Main report :

Check list, salient features , History, background, methodology, adopted in carrying out investigations and overall picture of the project including cost and viability, construction planning etc.,

2. **Designs and Drawing:**

This volume consisting of design of all components of the project also including site survey, design and drawings.

3. Cost Estimates:

Cost Estimates for various components of the project should be grouped into different units. The methodology adopted in framing the estimates of various sub-heads under the different units together with rate analysis etc should be discussed.

4. R& R Report and Forest Land:

R& R issues are to b included in this volume. Identification of forest land and identification of number of villages/ families affected in the Canal alignment.

5. Time Schedule: **P.T.O**

The work of detailed investigations and preparation of detailed project report should be completed within 4 months from the effective date of commencement.

6. Monitoring by the Department:

The investigation work carried out by the consultants will be verified by the Executive Engineer and / or his Engineering staff connected with the work. The Consultant(s) shall accompany during inspection of site by the concerned Chief Engineer and other officers connected with the project.

The consultant(s) shall submit monthly progress reports and progress of work will be reviewed by the departmental officers. The Executive Engineers/ or his Engineering staff connected with the work shall be entrusted with the supervision and checking of the investigation work of consultant(s). The DCBM values submitted by the consultants will be checked by the departmental officers. The consultants(s) shall associate with the officers during such operation 20% of representative DCBM levels have to be checked by the department officers not below the rank of DEE/EE.

7. Quality control and other connected aspects:

The consultant(s) shall have already procured latest surveying and leveling instruments particularly DGPS, TOTAL STATIONS AND AUTOLEVELS etc., to ensure quick accurate leveling operations. The Departmental officers shall examine the adequacy, quality, range of applicability of surveying and leveling instruments during detailed investigation.

8. **The consultants** shall inform to the departmental officers about the programme of detailed investigation well in advance to inspect the field operation so as to ensure satisfactory progress as per schedule.

9. Submission of detailed project report (final) :

The detailed project report has to be prepared in specified chapters in separate volumes as per CWC guidelines and to be submitted as directed by the Engineer-in-charge. Soft copy of the approved DPR shall be submitted .

S.No	Subject	No. of Volumes
1	Project Report	As per CWC requirements + 6 sets additional
2	Designs & Drawings R&R and Identification of number of villages/families affected in the submergence	As per CWC requirements + 6 sets additional
3	Cost Estimates & Data	As per CWC requirements + 6 sets additional

The consultants shall attend to all modifications, omissions, revisions, inadequacies collection of field information in respect of draft project report suggested by the department without extra cost. The consultant shall take responsibility of preparing DPR as per Departmental guidelines.

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10. Completion Report:

The Consultant has to take a certificate from the client after due fulfillment of all obligation pursuant to the bidding documents under T.O.R that the job assigned under contract has been completed to fullest satisfaction of the client.

11. Time schedule and Mile stones:

The work shall be completed in 4(Four) Months from date of signing of Agreement. The Consultant(s) should maintain the rate of progress as per the milestones, and Report . The details of the milestones shall be fixed by the Chief Engineer concerned.

12. Extension of time:

No extension of time is granted and the entire work is to be completed in 4 months. However, in special circumstances, reasonable extension of time over and above the agreement period may be granted after examining and satisfying grounds on which such extension has been sought for the agency without any extra cost.

13. Liquidated Damages/Penalties

Penalty in the shape of liquidated damages will be levied for slow progress of work against time schedule stipulated.

Penalty at the rate of 0.5% (point five percent) subject to maximum of 5%(five) on the value of the remaining work will be imposed for the delay of each week beyond the stipulate period of three months, if delay occurs due to negligence on the part of the consultant.

13. Terms of Payment:

5% after submission of Preliminary Report
15 % after completion of Topographic & Hydrographic survey/Hydrological studies
15% after completion of Geotechnical Investigation for offline storages/ balancing reservoirs and along water conductor system
15% after submission of draft DPR
20% after submission of Final DPR
30% after vetting and approval by Water Resources Department, Government of Andhra Pradesh.

15. **Description of Activities:**

The Consultant will be responsible to the Chief Engineer/Superintending Engineer/Executive Engineer. Their Team Leader will be responsible for all matters concerning the Consultants administrative, logistic and technical activities. He will interact with Government of Andhra Pradesh counter-part manger and report periodically. To the Chief engineer on progress and will clear with Chief Engineer/Superintending Engineer/Executive Engineer on all matters of policy both administrative and technical. Should the Consultant not agree with Government of Andhra Pradesh on any technical or institutional matter, they will attempt to resolve the

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difference on order to present a mutually agree solution. Should that not prove possible, bearing in mind the very limited period of the study, the issue may be reviewed by a competent/ authorized committee subsequently.

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PRINCIPAL SECRETARY TO GOVERNMENT